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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/822,326	04/12/2004	Chen Zhang	WJT08-0068 (JSF001-0041)	3121

7590 09/09/2005

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EXAMINER	
BARRECA, NICOLE M	
ART UNIT	**PAPER NUMBER**
1756	

DATE MAILED: 09/09/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/822,326	ZHANG ET AL.	
	Examiner	Art Unit	
	Nicole M. Barreca	1756	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *21 June 2005*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-9* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-9* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date *5/26/05*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

1. Claims 1-9 are pending in this rejection.

Terminal Disclaimer

2. The terminal disclaimer filed on 5/5/05 disclaiming the terminal portion of any patent granted on this application which would extend beyond the expiration date of US Patent Application No. 10/760,875 has been reviewed and is accepted. The terminal disclaimer has been recorded.

Response to Amendment

3. The affidavit under 37 CFR 1.132 filed 5/5/05 is insufficient to overcome the rejection of claim 1 based upon 35 USC 103 (a) rejection as being obvious over Zhang (US 2004/0227228) as set forth in the last Office action because: fails to set forth facts. The affidavit states that Paratek Microwave is the assignee of US Patent Application 10/256,974, which is not the present application or the application used in the rejection. There is no showing that the subject matter of the reference and claimed invention were at the time of invention was made, owned by the same person or assignee. Additionally the affidavit states only that US Patent Application US 2004/0227228 has been examined and US Patent Application 10/822,326 as presented amended and claimed, if disclosed in the cited references, was derived from one or more inventors of 10/822,326. There is no showing that any invention disclosed but not claimed in the reference was derived from the inventor of this application and is thus not an invention "by another". As written this statement does not appear to even compare the cited reference and present application by stating that "US Patent Application 10/822,326 as

presented amended and claimed, if disclosed in the cited references, was derived from one or more inventors of 10/822,326". Additionally please note that stating that invention was derived by one or more inventors is not the same as stating that the invention was derived by the inventor. One or more the same inventors would entail a different inventive entity, which, absent some additional showing is still considered "by another".

4. Applicant's arguments, see section III, filed 5/5/05, with respect to the rejection(s) of claim(s) 1, 7 and 8 under 35 USC 103 over Cummings in view of Bratscum have been fully considered and are persuasive. Therefore, the rejection has been withdrawn. However, upon further consideration, a new ground(s) of rejection is made in view of Cummings in view of the applicant's admitted prior art and Cummings in view of Sengupta (US 5,766,597).

Claim Rejections - 35 USC § 103

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

6. Claims 1, 7-9 are rejected under 35 U.S.C. 103(a) as being unpatentable over Cummings (US 4,336,320) in view of applicant's admitted prior art (AAPA).

7. Cummings discloses a method for making high density interconnection circuitry for multilayered hybrid micropackages. Dielectric thick film paste 21 is formed on ceramic substrate 20 and dried. Photoresist layer 22 is deposited and dried. These two

steps may be combined into a single step is the dielectric paste includes a photosensitive constituent (see cl.7). The photosensitive material is then exposed to UV light through a photomask 23. Following exposure the substrate is treated with a developer which simultaneously removes or etches both the photoresist and the dielectric. Dielectric 21 is then fired (sintered) at a temperature of about 800-1000 °C (see col.1, 43-col.2, 21 and claims). Cummings is silent on the exact composition of the dielectric and does not explicitly disclose that the dielectric thick film is tunable. The reference however does teach that the method is used to manufacture high density interconnection circuitry for multilayered hybrid micropackages. The applicant teaches that tunable dielectric materials including barium strontium titanate are known and described in the prior art (p.8, l.14-p.9, l.6). It would have been obvious to one of ordinary skill in the art to use a tunable dielectric in the method of making a thick film hybrid micropackage in the method of Cummings because the applicant teaches that tunable dielectric materials are known and described in the prior art.

8. Claims 1, 7-9 are rejected under 35 U.S.C. 103(a) as being unpatentable over Cummings (US 4,336,320) in view of Sengupta (US 5,766,697).

9. Cummings discloses a method for making high density interconnection circuitry for multilayered hybrid micropackages. Dielectric thick film paste 21 is formed on ceramic substrate 20 and dried. Photoresist layer 22 is deposited and dried. These two steps may be combined into a single step is the dielectric paste includes a photosensitive constituent (see cl.7). The photosensitive material is then exposed to UV light through a photomask 23. Following exposure the substrate is treated with a

developer which simultaneously removes or etches both the photoresist and the dielectric. Dielectric 21 is then fired (sintered) at a temperature of about 800-1000 °C (see col.1, 43-col.2, 21 and claims). Cummings is silent on the exact composition of the dielectric and does not explicitly disclose that the dielectric thick film is tunable. The reference however does teach that the method is used to manufacture high density interconnection circuitry for multilayered hybrid micropackages. Sengupta teaches a dielectric composition of barium strontium titanate which has improved electronic properties such as dielectric constants, tunability and low loss (col.2, 1-col.3, 67). It would have been obvious to one of ordinary skill in the art to use a tunable dielectric in the method of making a thick film hybrid micropackage in the method of Cummings because Sengupta tunable dielectric such as barium strontium titanate has improved electronic properties.

10. Claim 1 is rejected under 35 U.S.C. 103(a) as being obvious over Zhang (US 2004/0227228).

The applied reference has common inventors with the instant application. Based upon the earlier effective U.S. filing date of the reference, it constitutes prior art only under 35 U.S.C. 102(e). This rejection under 35 U.S.C. 103(a) might be overcome by: (1) a showing under 37 CFR 1.132 that any invention disclosed but not claimed in the reference was derived from the inventor of this application and is thus not an invention "by another"; (2) a showing of a date of invention for the claimed subject matter of the application which corresponds to subject matter disclosed but not claimed in the reference, prior to the effective U.S. filing date of the reference under 37 CFR 1.131; or

(3) an oath or declaration under 37 CFR 1.130 stating that the application and reference are currently owned by the same party and that the inventor named in the application is the prior inventor under 35 U.S.C. 104, together with a terminal disclaimer in accordance with 37 CFR 1.321(c). For applications filed on or after November 29, 1999, this rejection might also be overcome by showing that the subject matter of the reference and the claimed invention were, at the time the invention was made, owned by the same person or subject to an obligation of assignment to the same person. See MPEP § 706.02(l)(1) and § 706.02(l)(2).

A thick film tunable dielectric is overcoated with a thin film metal and a photoresist. The substrate is soft baked, exposed and post-exposure baked, followed by development. See [0022] and cl.12-19. Zhang does not disclose a sintering step. However it is known in the art that thick film dielectrics must be sintered in order to complete the manufacture the dielectric chip. It would have been obvious to one of ordinary skill in the art to sinter the thick film dielectric in the method of Zhang because it is known in the art that this is a required step in the manufacture of dielectric chips.

11. Claims 2-4 are rejected under 35 U.S.C. 103(a) as being unpatentable over Cummings in view of AAPR or Sengupta or Zhang as applied to claim 1 above, and further in view of Geist (US 4,772,377).

12. The references are silent on the method used to deposit the thick film dielectric and does not disclose that the thick film is screened printed and thixotropic. Geist teaches screen printing is used in the fabrication of thick film microelectronics such as hybrids and is an established techniques for the deposition of thixotropic electronic

materials (col.2, 54-68). It would have been obvious to one of ordinary skill in the art to deposit the thixotropic thick film dielectric by screen printing in the method of Cummings in view of AAPR or Sengupta or the method of Zhang because Geist teaches screen printing is used in the fabrication of thick film microelectronics such as hybrids and is an established techniques for the deposition of thixotropic electronic materials.

13. Claims 2-5 are rejected under 35 U.S.C. 103(a) as being unpatentable over Cummings in view of AAPR or Sengupta or Zhang as applied to claim 1 above, and further in view of Maruta (US 5,686,525).

14. The references are silent on the method used to deposit the thick film dielectric and does not disclose that the thick film is screened printed and thixotropic, or that the thick film is spin coated and Newtonian. Maruta teaches in the background that it is known that when screen printing is the method of deposition the coating material is desired to have a thixotropic property, while the coating material is desired to be in the form of a Newtonian fluid when the spin coating technique is employed (col.1, 33-41). It would have been obvious to one of ordinary skill in the art to deposit the thixotropic dielectric by screen printing, or to deposit the Newtonian dielectric by spin coating in the method of Cummings in view of AAPR or Sengupta or the method of Zhang because Maruta teaches in the background that it is known that when screen printing is the method of deposition the coating material is desired to have a thixotropic property, while the coating material is desired to be in the form of a Newtonian fluid when the spin coating technique is employed.

15. Claim 6 is rejected under 35 U.S.C. 103(a) as being unpatentable over Cummings in view of AAPR or Sengupta or Zhang as applied to claim 1 above, and further in view of Mueller (US 6,097,263).

16. The references are silent on the method used to deposit the thick film dielectric and does not disclose that the thick film is deposited using transfer coating, tape casting or dip coating. Mueller teaches that thick dielectric is typically deposited by tape casting (col.3, 26-29). It would have been obvious to one of ordinary skill in the art to deposit the thick film dielectric by tape casting in the method of Cummings in view of AAPR or Sengupta or the method of Zhang because Mueller teaches that thick dielectric is typically deposited by tape casting.

Conclusion

17. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Nicole M. Barreca whose telephone number is 571-272-1379. The examiner can normally be reached on Monday-Thursday (9AM-7PM).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Mark F. Huff can be reached on 571-272-1385. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Nicole M Barreca
Primary Examiner
Art Unit 1756

9/6/05